IN THE CLAIMS:

1-3. (cancelled)

4. (currently amended) An optical signal multiplexer/demultiplexer for bidirectional transmission and reception of optical signals through individual channels capable of working in a transmitting and receiving modes simultaneously for transmitting and receiving a plurality of optical signals of different wavelengths through each individual channel, said optical signal multiplexer/demultiplexer comprising:

a plurality of optical prisms arranged in series and having coatings selective with respect to transmission and reflection of said optical signals of different wavelengths ;

an inlet/outlet on one side thereof and ~~a second~~ an outlet/inlet on the other side thereof;

said optical signal multiplexer/demultiplexer passing one of said optical signals of different wavelengths from said inlet/outlet to said outlet/inlet and from said outlet/inlet to said inlet/outlet without substantially affecting said one of said optical signals, while processing the rest of said optical signals of different wavelengths;

said coatings comprising means for conjugation and separation of said optical signals of different wavelengths within said optical prisms;

wherein said plurality of optical prisms are combined into an integral unit and wherein said integral unit together with said inlet/outlet and said outlet/inlet comprise an optical module; and

wherein said inlet/outlet comprises a first signal transmission/receiving channel, and said outlet/inlet comprises a second signal transmission/receiving channel and a third signal transmission/receiving channel, each said signal transmission/receiving channel comprising an optical fiber having an end facing to a respective optical prism and a collimator/focusator on said end of said optical fiber, said collimator/focusator acting as an optical collimator for optical signals transmitted from each optical fiber to a respective optical prism and as an optical focusator transmitted from each optical prism to a

respective optical fiber, each said optical channel having an optical path for transmitting/receiving optical signals;

wherein said plurality of optical prisms comprises a first optical prism and a second optical prism, said first optical prism having a first side and a second side parallel to said first side; said second optical prism having a first side and a second side and being arranged in series with said first optical prism behind said second side of said first optical prism, said first side of said second optical prism being parallel to said second side of said first optical prism and facing said second side of said second optical prism, said second side of said second optical prism being parallel to said first side of said second optical prism and facing in a direction opposite to said first optical prism;

said optical signal multiplexer/demultiplexer transmitting and receiving a first-wavelength optical signal, a second-wavelength optical signal, and a third-wavelengths optical signal;

said coatings comprising:

a first antireflective coating formed on said first side of said first optical prism on the optical path of said first-wavelength optical signal, said second-wavelength optical signal, and said third-wavelength signal, said antireflective coating being transparent to said first-wavelength optical signal, said second-wavelength optical signal, and said third-wavelength optical signal;

a second coating formed on said second side of said first optical prism and transparent to said first-wavelength optical signal and said third-wavelength optical signal but reflective to said second-wavelength optical signal so that said second-wavelength optical signal is reflected from said second coating, while said first-wavelength optical signal and said third-wavelength optical signal pass through said second coating;

a third coating fully reflective to said second-wavelength optical signal, which is formed on said first side of said first optical prism and on an optical path of said second-wavelength optical signal reflected from said coating;

a fourth coating formed on said second side of said first optical prism and on an optical path of said second-wavelength optical signal reflected from said second coating, said fourth coating being transparent to said second-wavelength optical signal;

a fifth coating on said first side of said second optical prism which is transparent to said first-wavelength optical signal and said third-wavelength optical signal, said fifth coating being located on an optical path of said first-wavelength optical signal and said third wave-length optical signal;

a sixth coating formed on said second side of said second optical prism on an optical pass of said first-wavelength optical signal and said third wave-length optical signal, said sixth coating being transparent to said first-wavelength optical signal but being reflective to said third-wavelength optical signal, so that said first-wavelength optical signal passes through said sixth coating, while said third-wavelength optical signal is reflected from said sixth coating;

a seventh coating formed on said first side of said second optical prism on an optical path of said third-wavelength optical signal and on said optical path of said second-wavelength optical signal that passed through said fourth coating, said seventh coating being transparent to said second-wavelength optical signal, but being reflective to said third-wavelength optical signal; and

an eighth coating formed on said second side of said second optical prism on an optical path of said second-wavelength optical signal and of said third-wavelength optical signal, said eighth coating being transparent to said second-wavelength optical signal and to said third-wavelength optical signal, so that said second-wavelength optical signal and said third-wavelength optical signal pass through said eighth coating;

said second channel being located on an optical path of said first-wavelength optical signal and said third channel being located on an optical paths of said second-wavelength optical signal and of said third optical signal.

5. (original) The optical signal multiplexer/demultiplexer of Claim 4, further comprising a mounting base for mounting said first optical prism, said second optical prism, said first channel

signal input/output unit, said second channel signal input/output unit, and said third channel signal input/output unit and for optically aligning said optical paths of said first-wavelength optical signal, said second-wavelength optical signal, and of said third-wavelength optical signal with said coatings and with said signal input/output units.

6. (previously presented) The optical signal multiplexer/demultiplexer of Claim 5, wherein said first-wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1480 nm, and said third-wavelength optical signal has a wavelength equal to about 1310 nm.

7. (previously presented) The optical signal multiplexer/demultiplexer of Claim 5, wherein said first-wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1310 nm, and said third-wavelength optical signal has a wavelength equal to about 780 nm.

8-9. (cancelled)

10. (previously presented) The optical signal multiplexer/demultiplexer of Claim 4, wherein said first-wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1480 nm, and said third -wavelength optical signal has a wavelength equal to about 1310 nm.

11-12. (cancelled)

13. (previously presented) The optical signal multiplexer/demultiplexer of Claim 4, wherein said first-wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1310 nm, and said third -wavelength optical signal has a wavelength equal to about 780 nm.

14. (previously presented) An optical signal multiplexer/demultiplexer for bidirectional transmission and reception of optical signals through individual channels capable of working in a transmitting and receiving modes simultaneously for transmitting and receiving a first-wavelength optical signal, a second-wavelength optical signal, and a third-wavelengths optical signal, said optical signal multiplexer/demultiplexer comprising:

a first optical prism having a first side and a second side parallel to said first side;

a second optical prism arranged in series with said first optical prism behind said second side of said first optical prism, said second optical prism having a first side parallel to said second side of said first optical prism and facing thereto, and a second side parallel to said first side of said second optical prism and facing in a direction opposite to said first optical prism;

a first channel signal input/output unit with a first optical beam processing unit on said first side of said first optical prism;

a second channel signal output/input unit comprising a second optical beam processing unit on said second side of said second optical prism;

a third channel signal output/input unit comprising a third optical beam processing unit on said second side of said second optical prism;

a first antireflective coating formed on said first side of said first optical prism on the optical path of said first-wavelength optical signal, said second-wavelength optical signal, and said third-wavelength signal, said antireflective coating being transparent to said first-wavelength optical signal, said second-wavelength optical signal, and said third-wavelength optical signal;

a second coating formed on said second side of said first optical prism and transparent to said first-wavelength optical signal and said third-wavelength optical signal but reflective to said second-wavelength optical signal so that said second-wavelength optical signal is reflected from said second coating, while said first-wavelength optical signal and said third-wavelength optical signal pass through said second coating;

a third coating fully reflective to said second-wavelength optical signal, which is formed on said first side of said first optical prism and on an optical path of said second-wavelength optical signal reflected from said coating;

a fourth coating formed on said second side of said first optical prism and on an optical path of said second-wavelength optical signal reflected from said second coating, said fourth coating being transparent to said second-wavelength optical signal;

a fifth coating on said first side of said second optical prism which is transparent to said first-wavelength optical signal and said third-wavelength optical signal, said fifth coating being located on an optical path of said first-wavelength optical signal and said third wave-length optical signal;

a sixth coating formed on said second side of said second optical prism on an optical pass of said first-wavelength optical signal and said third wave-length optical signal, said sixth coating being transparent to said first-wavelength optical signal but being reflective to said third-wavelength optical signal, so that said first-wavelength optical signal passes through said sixth coating, while said third-wavelength optical signal is reflected from said sixth coating;

a seventh coating formed on said first side of said second optical prism on an optical path of said third-wavelength optical signal and on said optical path of said second-wavelength optical signal that passed through said fourth coating , said seventh coating being transparent to said second-wavelength optical signal, but being reflective to said third-wavelength optical signal; and

an eighth coating formed on said second side of said second optical prism on an optical path of said second-wavelength optical signal and of said third-wavelength optical signal, said eighth coating being transparent to said second-wavelength optical signal and to said third-wavelength optical signal, so that said second-wavelength optical signal and said third-wavelength optical signal pass through said eighth coating;

said first channel signal input/output unit being located on an optical path of said first-wavelength optical signal, said second-wavelength optical signal, and said third-wavelength optical signal;

said second channel signal input/output unit being located on an optical path of said first-wavelength optical signal; and

said third channel signal input/output unit being located on an optical paths of said second-wavelength optical signal and of said third-wavelength optical signal.

15. (original) The optical signal multiplexer/demultiplexer of Claim 14, wherein each said channel signal input/output unit comprises an optical fiber having an end facing a respective optical prism and a collimator/focusator on said end of said optical fiber, said collimator/focusator acting as an optical collimator for optical signals transmitted from each optical fiber to a respective optical prism and as an optical focusator for an optical signal transmitted from each optical prism to a respective optical fiber.

16. (previously presented) The optical signal multiplexer/demultiplexer of Claim 15, wherein said first-wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1480 nm, and said third-wavelength optical signal has a wavelength equal to about 1310 nm.

17. (previously presented) The optical signal multiplexer/demultiplexer of Claim 15, wherein said first wavelength optical signal has a wavelength equal to about 1550 nm, said second-wavelength optical signal has a wavelength equal to about 1310 nm, and said third-wavelength optical signal has a wavelength equal to about 780 nm.

18-21. (cancelled)